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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,629	12/26/2001	S. Steven Carl	HERC / 140	4427
26875	7590	05/28/2004	EXAMINER CHAUDHRY, SAEED T	
WOOD, HERRON & EVANS, LLP 2700 CAREW TOWER 441 VINE STREET CINCINNATI, OH 45202			ART UNIT 1746	PAPER NUMBER

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/025,629	Applicant(s) CARL ET AL.	
	Examiner Saeed T Chaudhry	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5-12,14,23,25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,5-12,14,23,25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Applicant's amendments and remarks filed March 10, 2004 have been acknowledged by the examiner and entered. Claims 1-2, 4, 13, 15-22 and 24 have been canceled and claims 3, 5-12, 23 and 25-26 are pending in this application for consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

Claims 3, 5, -12, 23 and 25-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Perry et al in view of WO-00306, Conely, Jr., Anderson and Edstrand et al.

Perry et al (5,527,395) disclose a method for cleaning an underground water distribution system having a scale associated with sulfate-reducing manganese or iron bacteria comprising: introducing an effective amount of an aqueous cleaning solution for the removal of said scale associated with sulfate-reducing, manganese or iron bacteria consisting primarily of iron or manganese oxide, biomass and sediment from inside surfaces of an underground water distribution system, said solution selected from the group consisting of acidic, neutral and basic solution, sealing off an underground section of pipe in said system for circulation of said cleaning solution therethrough, heating said cleaning solution to an elevated temperature of

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about 40.degree. C. to about 80.degree. C., circulating said heated cleaning solution through said underground section of pipe in said system for a sufficient period of time for solubilization, loosening and/or suspension of said scale and sediment, flushing said cleaning solution containing solubilized, loosened or suspended scale and sediment from said underground pipe section in said system.

Flushing said system with clean water after the removal of the spent cleaning solution. Wherein said aqueous treatment solution is acidic and contains further additives selected from the group consisting of acid inhibitors, chelating agents, surfactants, penetrating agents and dispersing agents, and mixtures thereof to assist in the removal of said scale and sediment. The acid is selected from the group consisting of mineral and organic acids and mixtures thereof. The mineral acid is selected from the group consisting of hydrochloric, nitric, phosphoric, polyphosphoric, hydrofluoric, boric, sulfuric, and sulfurous, and mixtures thereof. The organic acid is selected from the group consisting of formic, acetic, propionic, citric, glycolic, lactic, tartaric, polyacrylic, succinic, p-toluenesulfonic, and mixtures thereof (see claims). The reference fails to disclose cleaning system on board ships, that spray nozzles are removed and replaced by temporary fittings, pH of the acidic solution is in the range of 2 to about 2.2.

WO-00306 discloses Algae growth and other organic sediments on the inside of pipe transporting water through a pipe network for consumption, fire-fighting facilities and pipe networks can have major dimensions for examples in water mains from reservoirs to cities and smaller dimensions such as in building and ship, etc. Deposits in pipelines of carbonates, phosphates, etc., , which over time are precipitated from the liquid flow and fatty gradations.

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Today's heavy-duty scale removal is to great extent done by jet water washing and the use of a host chemical solvents (see page 1, lines 24-39).

Connelly, Jr. (3,969,255) discloses a method for cleaning piping system in the building. In cleaning or descaling a residential water system, the water supply is shut off, and the water removed from the plumbing. A shower head is removed and capped at the highest point of the water system and by opening both the hot and cold valves on the capped shower, the pipe cleaning solution can be pumped up through the cold water system, whereupon it returns down through the hot water system or vice versa. The time of pumping will depend on the concentration of the acid in the pipe cleaning solution and is a function of the amount of scale actually present in the pipe. The actual technique by which this pipe cleaning solution is applied to the pipes is not critical with respect to the present invention although it is preferred to keep the time of contact as short as possible in order to minimize corrosion.

After the scale has been removed using the compositions of the present invention, it may be advisable to neutralize the cleaned pipe. After cleaning out domestic or residential water systems, it is necessary to thoroughly flush the acid and all inhibitors out of the system. In this regard, the present invention contemplates the use of neutralizing agents, baking soda, or the like to neutralize the acid (see col. 7, lines 19-43).

Anderson (4209,418) discloses that acid cleaning is used to remove deposits to water scale from water plant boilers and piping systems and evaporating equipment. Since cleaning acid tends to remove portion of the basis metal of the equipment with each cleaning the use of inhibitors to minimize basis metal loss in acid cleaning can substantially extend the life of the

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equipment. The cleaning solution on the present invention include an acidic solution of pH 1.7 to 7 (see col. 3, lines 1, lines 37-65 and col. 3, lines 36-40).

It would have been obvious at the time applicant invented the claimed process to clean piping system on boars ships with the process of Perry et al because WO-00306 discloses that deposits in the piping system on ships are removed by chemical means for faster and low cost removal of scale from inside of the piping system. The removal of scale from the inside of the piping system would increase the liquid flow, hence the efficiency of the system. Since Perry et al disclose to isolate the system from the other system. Therefore, one of ordinary skill in the art would isolate the system on the ship for cleaning , which would require only part of the system by out of order and rest of the system could be used .

It would have been obvious at the time applicant invented the claimed process to remove the spray nozzles and replaced with temporary fittings as disclosed by Connelly, Jr. into the process of Perry et al for the purpose of saving the chemical from discharging through the spray nozzles. Further, Perry et al disclose to clean the piping system with acidic solution which could be from 1 to 7 and Anderson disclose to treat the metal surface with acidic solution having the pH range of 1.7 to 7. Therefore, one of ordinary skill in the art would manipulate the pH for better and efficient results. Furthermore, one would reasonably expect to connect isolated section with fire system of the ship for faster flushing the isolated system and use plurality of hoses to connect the temporary fitting for purpose of circulating the cleaning solution through the isolated system.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perry et al. in view of WO-00306 Conely, Jr., Anderson and Edstrand et al.

Perry et al., WO-00306, Cannelly, Jr. and Anderson were discussed supra. However, the references fail to disclose a mobile unit.

Edstrand et al. (5,680,877) A method of and system for cleaning and maintaining water distribution pipes which have reduced flow due to an increase of water scale deposits, sediment and the like along the inside surface of the pipe includes a mobile cleaning unit which can be conveniently and easily connected to a pipe section to be cleaned. An aqueous cleaning solution is introduced and circulated in a first direction through the pipe section for sufficient time to dissolve and loosen scale and sediment. The spent treating solution and other deposits are flushed from the pipe and the mobile cleaning unit to an appropriate waste stream. Advantageously, the direction of the flow of the treating solution can be reversed without disconnecting the cleaning unit from the pipe section.

A system for cleaning a pipe section of a water distribution network comprising: a tank adapted to hold a chemical treating solution; a pump connected to the tank for circulating the treating solution and water from the distribution network into and from the tank; an upstream diversion valve being connected to an upstream end of the pipe section and being adjustable between a discharge position permitting flow from the system to the upstream end of the pipe section and a return position permitting flow from the upstream end of the pipe section to the system; a downstream diversion valve being connected to a downstream end of the pipe section and being adjustable between a discharge position permitting flow from the system to the downstream end of the pipe section and a return position permitting flow from the downstream end of the pipe section to the system; wherein the treating solution can be circulated in a path through the system and the pipe section in a first direction when the upstream and downstream diversion valves are in the discharge and return positions, respectively, and the treating solution can be circulated in a path through the system and the

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pipe section in a second direction opposite from the first direction when the upstream and downstream diversion valves are in the return and discharge positions, respectively, without disconnecting the system from the pipe section, the circulation of the solution in the first and second directions increasing the cleaning effectiveness of the system to remove scale and other sediment within the pipe section; a bypass line connected between the chemical tank and the pump; a bypass valve operably connected on the bypass line and permitting flow from the pump to the tank, the bypass valve being adjustable to and between an open position and a closed position to permit adjustment of pressure and flow rates within the system; an upstream stop valve operably connected between the upstream diversion valve and the upstream end of the pipe section; an downstream stop valve operably connected between the downstream diversion valve and the downstream end of the pipe section, each said stop valve being adjustable between open and closed positions which permit and prevent, respectively, flow therethrough; and a vehicle upon which the system is mounted for transportation (see abstract and claims).

It would have been obvious at the time applicant invented the claimed process to use a mobile unit as disclosed by Edstrand et al in the process of Perry et for the purpose of conveniently transporting and position of the cleaning unit proximate a pipe section to be cleaned of the water distribution system.

Response to Applicant's Arguments

Applicant argued that Perry et al is directed to cleaning a portable water distribution system. Perry et al is not directed to cleaning a countermeasure washdown system onboard ships.

This argument is not persuasive because WO-00306 discloses to remove algae growth, organic sediments or other scale from inside of the pipes of building and ship. Therefore, one of

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ordinary skill in the art would use the teaching of WO-00306 for cleaning the countermeasure washdown system on board ships.

Applicant argued that Perry et al fail to disclose spray nozzles, their removal and inactivation, a system where there is aluminium piping, a plurality of hoses and connectors for connecting temporary fittings to a manifold and introducing an acid cleaning solution having a pH of 2 to 2.2 in the section.

These arguments are not persuasive because it is well known in the art of cleaning to temporarily remove the nozzles and connect fittings for circulation as disclosed by Connelly, Jr. for building. Therefore, one of ordinary skill in the art would use the teaching of Connelly, Jr. for cleaning the piping system on the ship. Further, cleaning metal pipes with acids are well known in the cleaning art as disclosed by Anderson. Therefore, one of ordinary skill in the art would use Anderson teaching for cleaning piping system on the ship with acid having pH in between 2 and 2.2.

Applicant argued that WO-00306 is equally deficient to disclose chemically cleaning a countermeasure washdown system on the ship. The reference also fails to teach a plurality of washdown spray nozzles and method for inactivating them by removing or replacing them.

This argument is not persuasive because WO-00306 disclose to cleaning piping system in building and ships. Therefore, one of ordinary skill in the art would clean the countermeasure washdown system because this system also include piping system. Further, it is well known in the art of cleaning to temporarily remove the nozzles and connect fittings for circulation as disclosed by Connelly, Jr. for building. Therefore, one of ordinary skill in the art would use the teaching of Connelly, Jr. for cleaning the piping system on the ship.

Applicant argued that Connelly, Jr. is simply irrelevant. None of the method steps are evident or suggested by Connelly, Jr.

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This argument is unpersuasive because Connelly, Jr. disclose to clean piping system of building by removing shower head. Therefore, one of ordinary skill in the art would use the teaching of Connelly, Jr. for cleaning ship piping system by removing the nozzle to save cleaning solution.

The applicant argued that in the case of countermeasure washdown systems, the cleaning task is very difficult because of all the bends and turns, vertical and horizontal positioning of the pipe in various sections of the system.

This argument is unpersuasive because it well known in the cleaning art to clean heatexchanger which has bends and turn, vertical and horizontal section as disclosed by Anderson. Therefore, one of ordinary skill in the art would use the teaching of Anderson for cleaning the countermeasure washdown system.

Applicant's arguments filed March 10, 2004 have been fully considered but they are not persuasive.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is (571) 272-1298. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 4:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Randy Gulakowski, can be reached on (571)-272-1302. The fax phone number for non-final is (703)-872-9306.

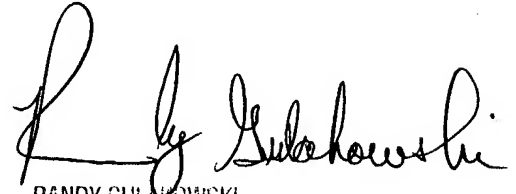
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When filing a FAX in Gp 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Saeed T. Chaudhry

Patent Examiner

A handwritten signature in black ink, appearing to read "Randy Gulakowski". The signature is fluid and cursive, with a large initial "R" and "G".

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700